

# AN ILLUSTRATED GLOSSARY OF KAYAK TERMINOLOGY

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# AN ILLUSTRATED GLOSSARY OF KAYAK TERMINOLOGY

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NATIONAL MUSEUM OF MAN



Photo: Peter Lloyd

**M**y general concern in this article is elemental — how can a museum artifact be adequately described? I am not dealing with the total information that should be on a catalogue card nor the problem of identification/documentation. Rather I am interested in the basic description that details whether the specimen is long or short, wide or narrow, made of stone or bone, etc.

A description that does not use proper exact terminology is almost as useless as an artifact without documentation. Although terminologies already exist, they are little used because they are either not easily accessible, being scattered in numerous references, or are not understood by potential users due to poor or non-existent visual illustrations. This article brings together the terminology and the illustrations needed to accurately describe a subclass of small watercraft known as **kayaks** (defined in the singular as: a small watercraft composed of a discrete wooden framework covered and decked-over with skin and generally supplied with individual cockpits for one to three occupants).

The question of taxonomic systems for items of material culture is also relevant to the general problem of artifact description. It is precisely because there are no standard taxonomies for artifacts, and most specimens are treated as though they were unique items, that the

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## RÉSUMÉ

La description d'un artefact de musée se doit d'être basée sur une terminologie rigoureusement exacte sinon elle est presque aussi inutile qu'un artefact sans documentation. Il existe déjà des terminologies, mais elles sont dispersées à travers plusieurs ouvrages de référence et insuffisamment illustrées. Cet article présente spécifiquement la terminologie et les illustrations indispensables à une description précise et exacte d'une sous-classe de petites embarcations connues sous le nom de "qajaq". Elles sont également applicables dans la description de la plupart des petites embarcations.

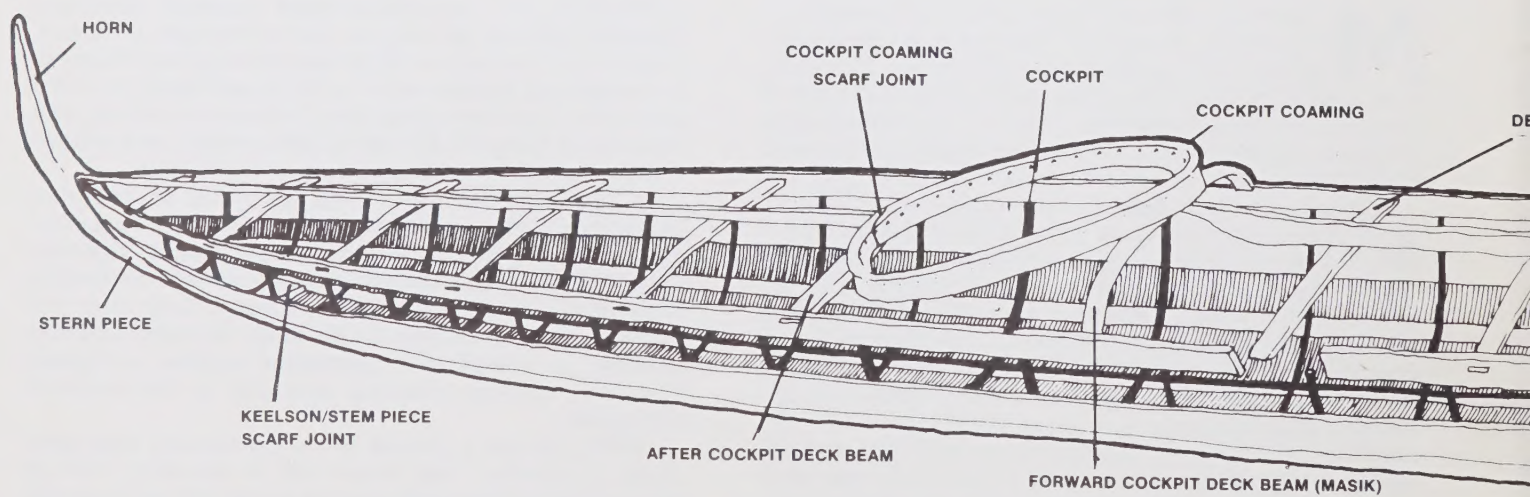
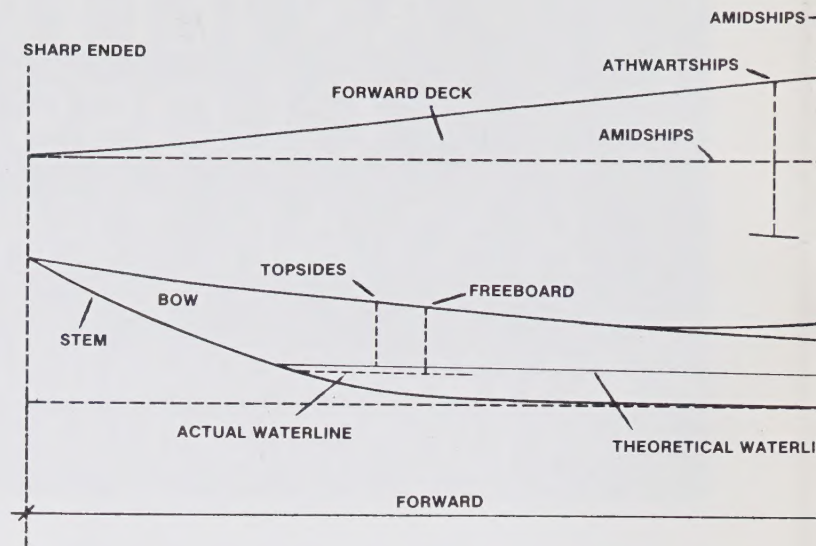
inadequate and non-standardized museum catalogue systems abound. As long as this is the state of affairs, advances in the study of material culture will be almost nil; computerized inventories of artifacts will result only in a scientifically useless expenditure of time and money; and the current dangerous trend to view, exhibit, and publish artifacts as art for art's sake only, will continue.

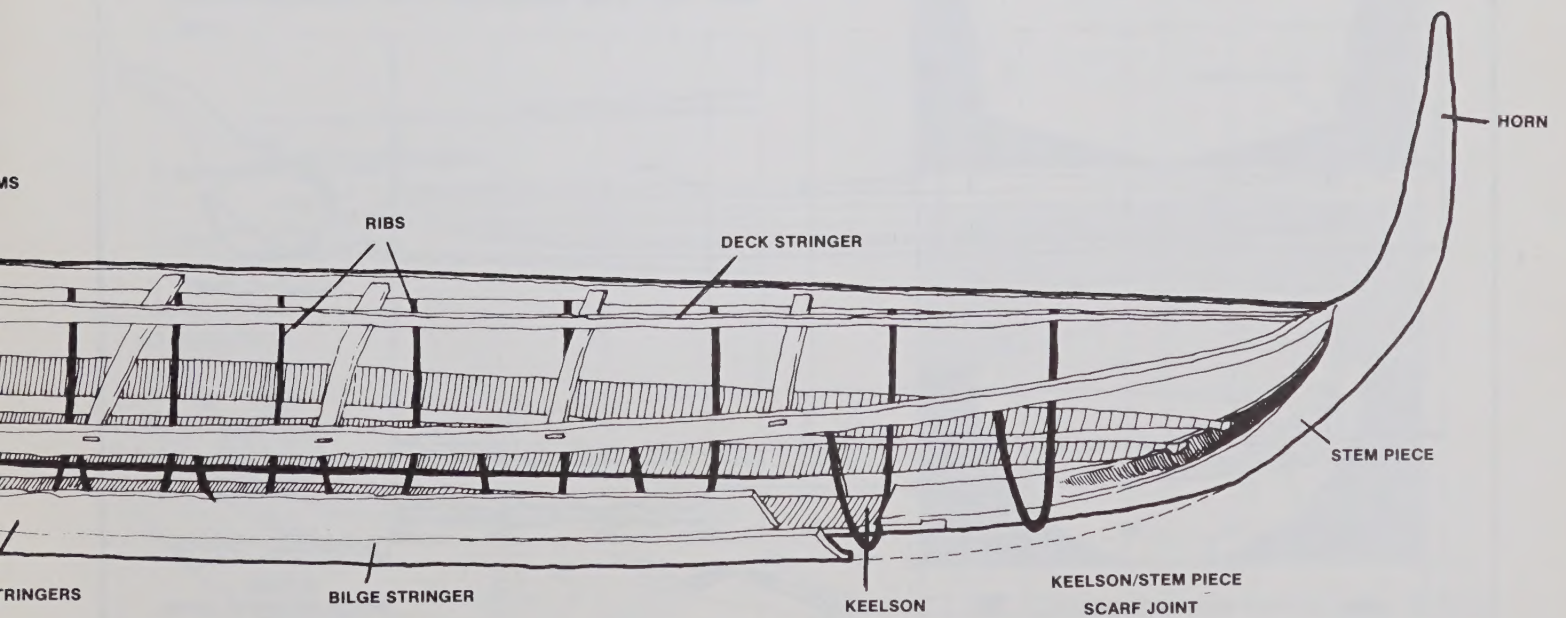
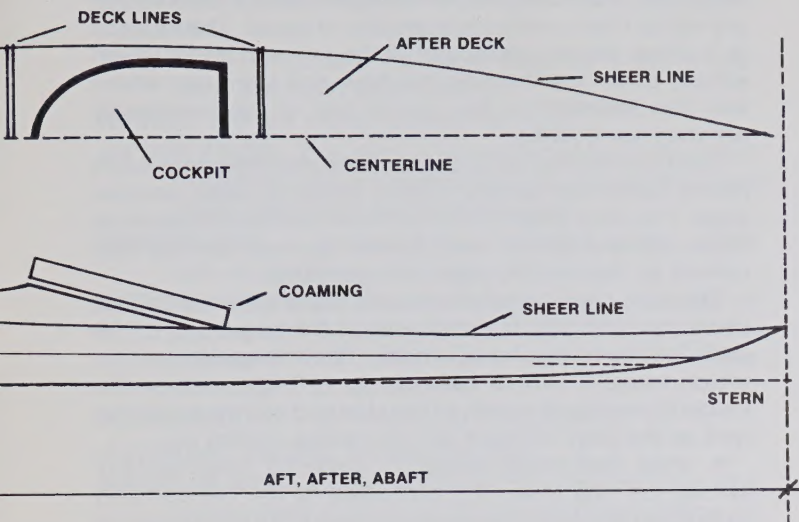
To preclude this trend from becoming an enduring condition, researchers are required to study specimen collections in many museums, to write detailed rigorous descriptions of their findings and to propose and identify type-specimens in a taxonomic system. Only after this kind of foundation is laid can the study of material culture proceed to comparative **contextual** studies — studies that can provide meaning and life to the artifacts themselves.

During the early course of my continuing long-term study of kayaks, I was faced with an appalling lack of terminological standardization in watercraft descriptions. Without this standardization, I found it difficult to proceed to higher levels of analysis or to communicate with other interested students of the subject. Until the problem of what we are talking about and what language to use is resolved, we will not even be able to scientifically decide what constitutes a type.

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However, since this is not a report of my kayak studies, suffice it to say that there are ten basic types of kayaks with thirty to fifty different sub-types. The Mackenzie Eskimo kayak is one of the basic ten. The kayak description that follows is of a classic Mackenzie Eskimo type-specimen in the collections of the National Museum of Man (NMM IV-D-2039). Having studied actual specimens or detailed photographs of all known existing Mackenzie Eskimo kayaks as well as a large number of historical field photographs, it is my contention that this particular specimen is the one with which all others of this type should be compared. Thus it is necessary to have a concise, but **complete** description of this specimen. Then, for the sake of economy of time and space, descriptions of other Mackenzie specimens merely have to refer to the description of the type-specimen and note only the **differences**.

The illustrated glossary of terminology that follows the sample description is specific to kayaks, but for the most part is generally applicable to any small watercraft.

The author would be pleased to correspond with anyone interested in or working with this or similar problems.

I wish to acknowledge with thanks the helpful criticisms of the glossary given by John D. Heath.

## SAMPLE KAYAK DESCRIPTION

This classic type-specimen from the Mackenzie Eskimo is a decked, full-ended, narrow-beamed, rounded, multi-chine sealskin covered kayak with straight bottom and rising bow and stern that terminate in two vertical horns.

There is almost no sheer except for a slight amount near the bow.

The cockpit coaming is slightly raked and rests fore and aft on curved deck beams of somewhat heavier construction than the other deck beams. The coaming is of the floating type with the skin-covering under it.

The deck is slightly ridged along its full length due to a high narrow deck stringer whose top surface is above the deckline.

The keelson, bilge stringers and side stringers (one on each side) are unusual in being very wide and so thin that they curve under the force of the cover to give an almost truly round hull. The keelson is slightly wider than the bilge and side stringers. All stringers except the keelson are made from continuous lengths of wood. The keelson is in three pieces composed of the two end horns which extend down just beyond the bow and stern rise where they are fastened to the central part of the keelson by notched scarf joints.

The ribs are of an oval section fitted into the gunwales in round holes with several held in place by small wooden pegs. The deck beams have both end surfaces tapered on sides, top and bottom and fit into tapered mortices that extend all the way through the gunwales.

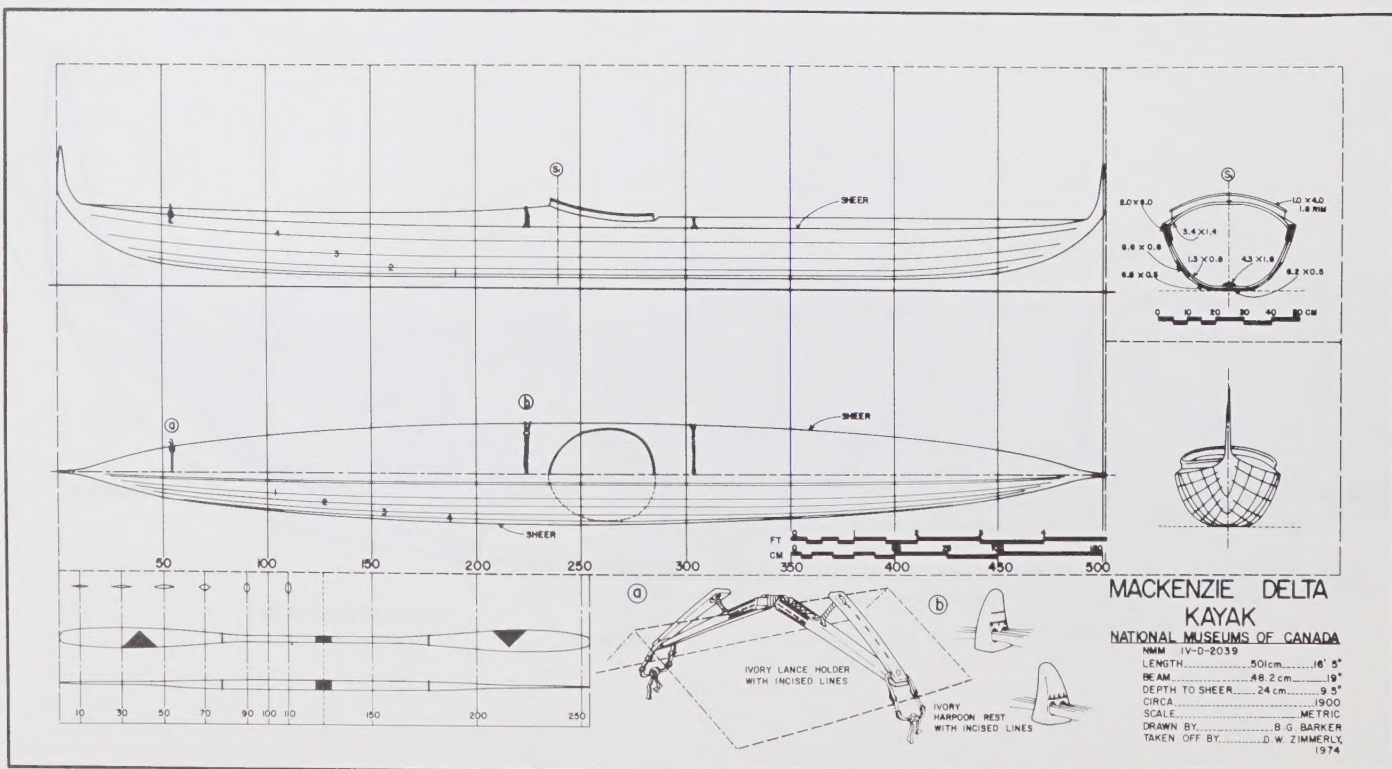
The horn pieces are flat and wide at the bottom and start to narrow and become triangular at the beginning of the end rise up to the horn proper. The triangular section which forms a sort of cutwater is hollowed out on the inside to receive the ends of the side and bilge stringers as well as the deck stringer and gunwales further up.

A small half-round batten is fastened longitudinally across the ribs down the centerline of the keelson and extends only a short distance fore and aft of the cockpit to provide added support for the thin keelson to prevent sagging.

Double deck lines lie fore and aft of the cockpit and an ivory lance holder is fastened to the bow deck. A small carved and incised ivory harpoon rest is attached to the starboard side of the forward deck lines.

The paddle has narrow lanceolate-shaped blades although the tips are rounded somewhat. There is slight ridging on both sides of the blades; the shaft is oval with the widest part perpendicular to the plane of the blades. Drip rings are slight in cross-section with one made of braided sinew and the other of baleen. The paddle is painted with a red ochre color in a band around the middle and in a triangular pattern on both sides of both blades.

Framework lashings are of baleen, sinew and some type of root, probably spruce. Craftsmanship is excellent throughout. Weight 32 lbs.





## GLOSSARY

**ABAFT.** In the rear of; behind. Used as a comparative term to describe the spatial relationship of one object with another. Rarely used today. See also: **aft**.

**AFT.** At, in or toward the stern. Used as a directional term. See also: **abaft**, **after**.

**AFTER.** Farther aft, or toward the stern.

**AFTER EDGE.** The edge of some part of a craft that is at or farther toward the stern than another edge. Used interchangeably with **trailing edge**.

**AMIDSHIPS.** In or toward the middle of a ship, or the part midway between stem and stern.

**APRON.** A waterproof cloth used to keep water out of the cockpit. It fastens around the coaming and the paddler's waist. Also called **spray apron**, **white water skirt**, or **spraydeck**.

**ATHWART.** At right angles to a ship's keel.

**ATHWARTSHIPS.** Across the craft.

**BANG-PLATE.** A strip of bone at the bow or stern of a kayak used to protect the cover from cutting or wear.

**BATTEN.** See: **stringer**.

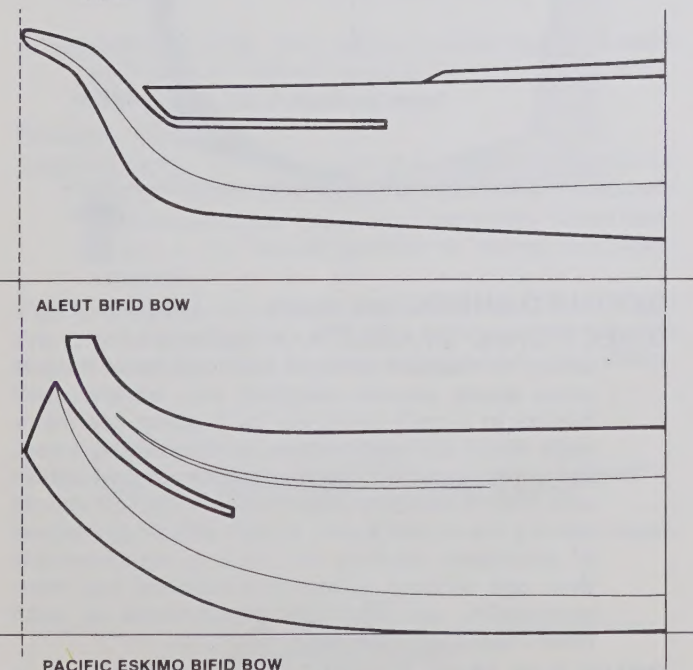
**BEAM.** The greatest breadth or width of a craft. Kayaks with a beam from about 15" to 20" are **narrow-beamed**; those from 20" to 24" have **moderate beam**, while those from 24" to 32" are **broad-beamed**.

**BENT FRAME.** See: **rib**.

**BAIDARA, BIDARA.** Term used originally by Russians for the open skin-covered **umiak**.

**BAIDARKA, BIDARKA.** Term used originally by Russians for the decked skin-covered **kayak**. In Southern Alaska the spelling is usually **BIDARKI** or **BIDARKY**, a corruption of the Russian plural **BAIDARKI**.

**BIFID BOW.** Two part bow configuration found among Aleut and other south Alaskan kayaks. Term used interchangeably with **bifurcated bow** and **cleft bow**.



**BIFURCATED BOW.** See: **bifid bow**.

**BILGE.** The turn of the hull below the waterline; area inside the hull near the bottom. See: **turn of the bilge**.

**BILGE STRINGER.** See: **stringer**.

**BLADE.** The thin flat portion of the paddle that exerts force against the water. See also: **paddle**.

**BOW.** The forward part of a vessel. See also: **stem**, **pro**.

**BROAD BEAM.** See: **beam**.

**BROACH.** The veer to windward, especially so as to be broadside to the wind. (Fol. by **to**)

**BULWARK.** A solid part of a ship's side extending like a fence above the level of the deck.

**BUOYANCY.** Upward pressure exerted by the water in which a craft is immersed.

**CANOE.** Traditionally a non-decked long and narrow boat, sharp at both ends, with curved sides, usually built of lightweight materials and propelled by a kneeling paddler using a single-bladed paddle.

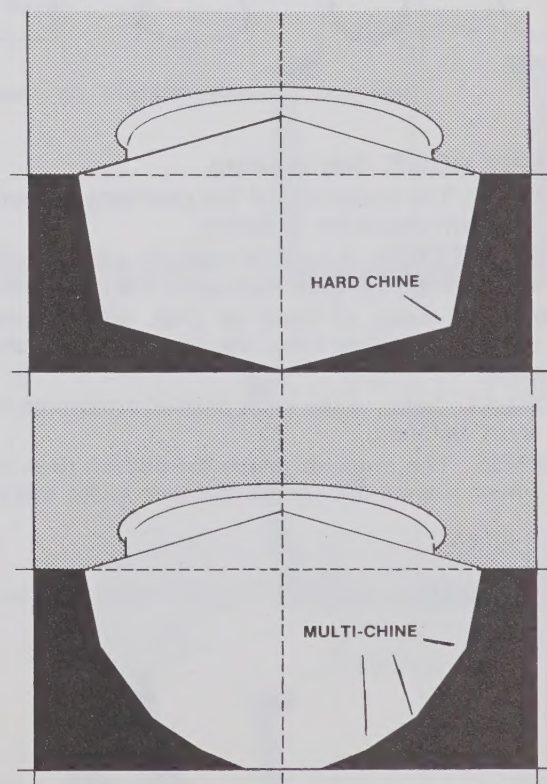
**CENTER OF BUOYANCY.** The point in the centerline of a craft at which the buoyancy forward and aft are in equilibrium.

**CENTER OF GRAVITY.** That point of a craft from which it could be suspended or on which it could be supported and be in equilibrium in any position in a uniform gravitational field.

**CENTERLINE.** Line that divides craft lengthwise into right and left.

**CHAMFERED.** An oblique surface cut on the edge or corner of a solid, usually a board. Also called a beveled edge.

**CHINE.** Any corner or angle as opposed to a curve in cross-section. A **hard chine** is one over 45°.



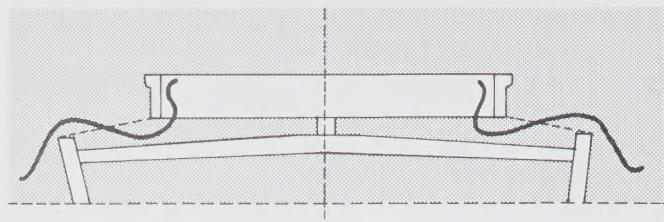
**CHINE LINE.** Longitudinal line formed by a stringer over which the cover lies in a sharp angle.

**CLEFT BOW.** See: **bifid bow**.

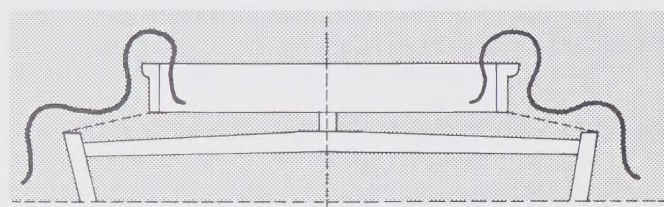
**COAMING.** A raised, usually vertical, framing around cockpit to keep water out. Used interchangeably



with **hoop** or **cockpit hoop**. Kayak coamings are sometimes an integral part of the framework (**fixed coaming**) with the skin covering fastened over them, or they may be the **floating** type where they only rest against the fore and aft cockpit deck beams and are held in place by the skin covering which comes under them.

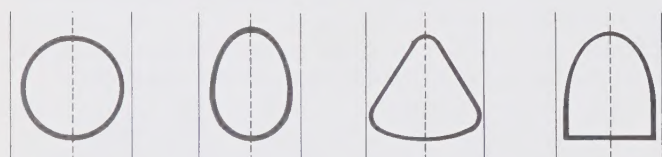


FLOATING COAMING



FIXED COAMING

**COCKPIT.** An opening in the deck for the paddler.



ROUND

ELLIPTICAL

ROUNDED TRIANGLE

"D" — SHAPED

**COCKPIT HOOP.** See: **coaming**.

**COUNTER.** The underside of the overhanging part of the stern above the waterline.

**CROSS-SECTION.** A section made by a plane cutting at right angles to the longest axis. See also: **section**.

**CUTWATER.** Knee of head of ship, dividing water before it reaches bow; the fore part of a ship's stem.

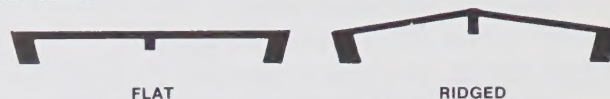
**DEADFLAT.** Sides of the deck parallel amidships for a short distance.

**DEADRISE.** The angle at which the bottom rises from where it joins the keel to the turn of the bilge, or

chine. An angle more than  $20^{\circ}$ , called **steep deadrise**, is typical of boats designed for heavy seas.

**DECK.** The top covering of kayak extending from side to side (gunwale to gunwale). Kayaks have either **flat decks** or **ridged decks**.

DECK SHAPES



FLAT

RIDGED

**DECK BEAM.** An athwartships member that spreads the gunwales. Used interchangeably with **cross beam** and **thwart** although the latter technically refers to a crosswise seat in a small open boat.

**DECK CENTERLINE.** Line at middle of deck that divides craft lengthwise into right and left. This line is actual in a craft with a ridged deck and imaginary in one with a flat deck.

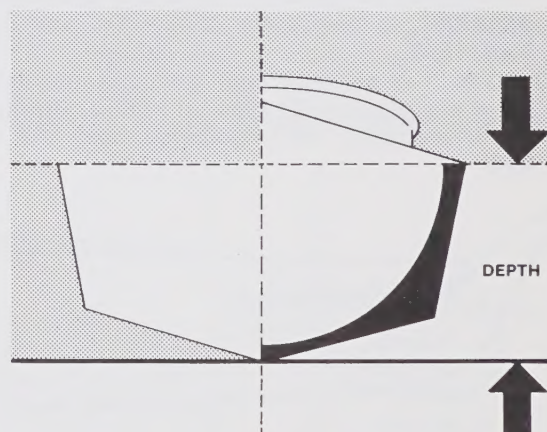
**DECK LINE.** Athwartships line usually fore and aft of the cockpit, used to secure various hunting implements.

**DECK STRINGER.** See: **stringer**.

**DECKLINE.** Lengthwise division of sides of craft from deck. Also called **sheer line**.

**DEEP FOREFOOT.** See: **forefoot**.

**DEPTH.** A measurement of inside hull roominess. Measured at the point of maximum beam from the outside hull center up to the **sheer line** (sometimes recorded as **depth to sheer**). Depth is the most unstandardized measurement used in regard to kayaks making comparisons between types difficult. The above measurement is the recommended one.

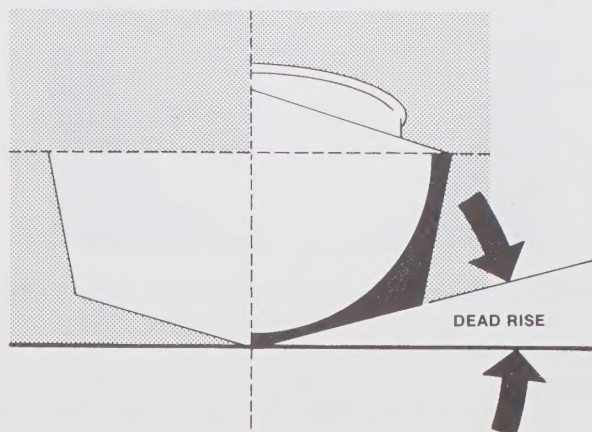


**DEPTH TO SHEER.** See: **depth**.

**DIRECTIONAL STABILITY.** A measure of a craft's ability to maintain straight line movement despite cross winds, uneven paddling, etc., an important feature in a craft designed for hunting sea mammals. Right before shooting or harpooning a seal, the hunter must stop paddling at which time a craft with poor directional stability could veer off course ruining the hunter's aim. A craft with a high degree of directional stability will be less maneuverable than one without. Directional stability and maneuverability are inversely proportional to each other. See also: **stability**.

**DOUBLE-BLADED PADDLE.** See: **paddle**.

**DRAFT.** Spelling variation of **draught**.





**DRAUGHT.** The depth a craft sinks in water. Also spelled **draft**.

**DRIP RING.** A rubber collar, band of braided sinew, seal skin or wood protuberance between the blades and hand grips of a double-bladed paddle that prevent water from running down the shaft onto the paddler's hands. See also: **paddle**.

**ELEVATION.** A drawing or design which represents an object or structure as being projected geometrically on a vertical plane parallel to its chief dimension. Used interchangeably with **profile view** and **side view**.

**FIXED COAMING.** See: **coaming**.

**FLARE.** Outward spread and upward curve of the topsides as they rise from the waterline, most noticeably in the bow sections. While a kayak's skin cover can only form a concave curve under special circumstances, the term flare is used to describe the usual non-vertical sides. There is no standardized degree of angle of flare to define **slightly flared**, **moderately flared** and **sharply flared**. See also: **hull**.

**FLAT-BOTTOM.** See: **hull**.

**FLAT DECK.** See: **deck**.

**FLOATING HOOP.** See: **coaming**.

**FOLLOWING SEA.** Used to describe the orientation of a craft whose stern is first hit by waves perpendicular to it.

**FOLLOWING WIND.** A wind originating astern of a craft.

**FOREDECK.** That portion of the deck at or toward the bow.

**FORE.** At or toward the bow.

**FOREFOOT.** That point where the stem joins the keel (keelson on a kayak). A **deep forefoot** is one which extends deep into the water. This is found on most Eastern Canadian Arctic kayaks.

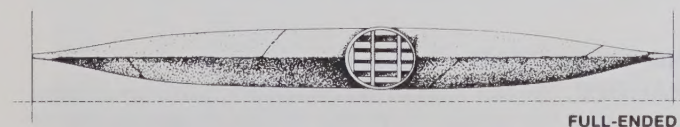


**FORWARD EDGE.** The edge of some part of a craft that is at or farther toward the bow. Used interchangeably with **leading edge**.

**FRAME.** See: **rib**.

**FREEBOARD.** A measure of that portion of the top of the hull at the side above the waterline. Freeboard decreases as the craft's load increases. **Least freeboard** is the lowest portion of above. See also: **topsides**.

**FULL-ENDED.** A craft that maintains a fairly wide beam almost to the stem and stern as opposed to one that tapers gradually to sharp ends and is termed **sharp-ended**.



**GUNWALE.** The upper edge of sides of a craft. The uppermost **wale** of a ship, next below the **bulwarks**. So called because guns were set upon it. In kayaks, it refers to the deep uppermost longitudinal stringer that is the main strength member in the framework.

**HARD CHINE.** See: **chine**.

**HEEL.** A sideways leaning of a craft caused by wind, the leaning of a paddler, a narrow beam and round bottom, etc. A craft that heels easily is called tender, crank or cranky; those that resist heeling are termed stiff.

**HOG-BACK.** To arch upward like the back of a hog. Sometimes used interchangeably with **reverse sheer**. Refers to the top of a kayak's profile. See also: **sheer**.

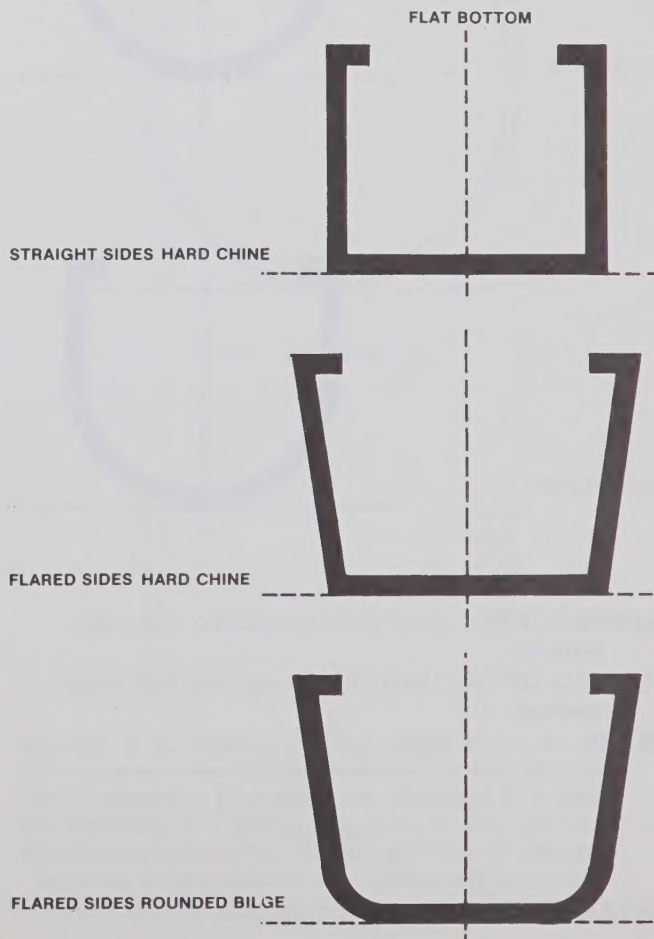
**HOGGING.** To droop at both ends. A kayak with too light a framework and too much rocker may exhibit hogging. See also: **hog-back**, **sheer** and **reverse sheer**.

**HORN.** Name given to stem and stern extensions on several kinds of kayaks. These may vary from being almost vertical as in Mackenzie kayaks to near horizontal as in some Caribou Eskimo types. See: **bow**.

**HULL SECTION.** See: **hull**, **cross-section**.

**HULL.** The basic structural shell of a craft. Kayaks are of three basic types: **flat-bottomed**, **V-bottomed** and **round-bottomed** with several variations of each type. With the near exception of the Mackenzie kayak, all other round bottom types are actually **multi-chine** hulls.

#### HULL SHAPES





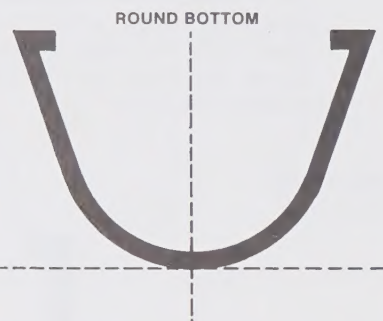
V-BOTTOM



HARD CHINED BILGE FLARED SIDES

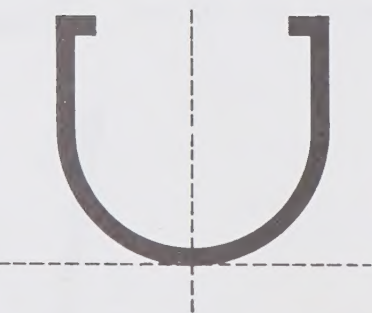


ROUNDED BILGE FLARED SIDES



ROUND BOTTOM

FLARED SIDES



STRAIGHT SIDES

**HUMPBACKED.** Used interchangeably with **hog-backed**.

**HUMPED DECK.** Used interchangeably with **hog-backed**.

**KAYAK.** A small watercraft composed of a discrete wooden framework covered and decked-over with skin and generally supplied with individual cockpits for one to three occupants. The paddlers are usually in a sitting position with outstretched legs and most frequently use double-bladed paddles.

**KAYAKER.** One who paddles a kayak.

**KEEL.** The bottom outside center support of a craft for length of indefinable line. Traditional Arctic kayaks had a **keelson** instead of a true keel. See also: **keelson**.

**KEELSON.** The bottom centerline longitudinal strength member inside a kayak. As all parts of the kayak's framework are contained inside the skin cover, there can be no true **keel**.

**LATH.** See: **stringer**.

**LEADING EDGE.** See: **forward edge**.

**LEAST FREEBOARD.** See: **freeboard**.

**LENGTH.** The greatest length of a craft is called **Length overall (LOA)**. **Waterline length (LWL)**, is measured at the designed waterline and excludes the bow and stern overhangs. LWL also means **load waterline**. **Waterline length** and **load waterline** are used interchangeably. See also: **load waterline**.

**LENGTH OVERALL (LOA).** See: **length**.

**LOAD WATERLINE.** The indefinable line where the water meets the craft when loaded. Abbreviated on architectural drawings of watercraft as LWL. See also: **length**.

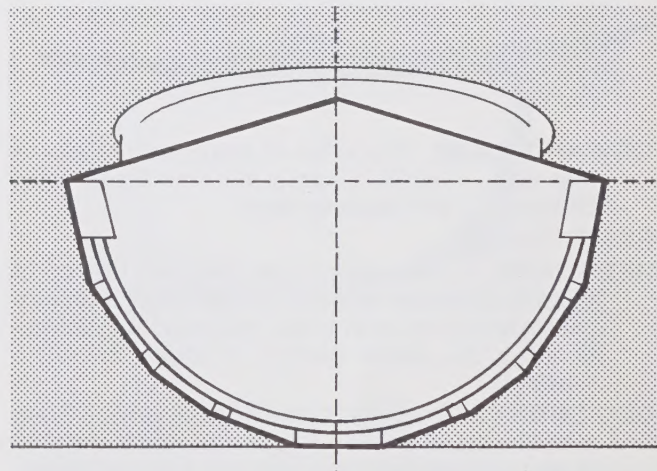
**LOOM.** The part of an oar or paddle between the blades and the handle. See also: **paddle**.

**LWL.** See: **load waterline** and **waterline length**.

**MANEUVERABILITY.** A relative measure of how easily a kayak can execute a turn. See also: **directional stability**.

**MANHOLE.** An opening in the deck for the paddler. Used interchangeably with **cockpit**.

**MULTI-CHINE.** Traditional Arctic kayaks with hulls termed round are actually multi-chine due to the properties of the stretched skin cover. A multi-chine hull is one with a series of hard angles instead of smoothly curved surfaces. See also: **chine**.



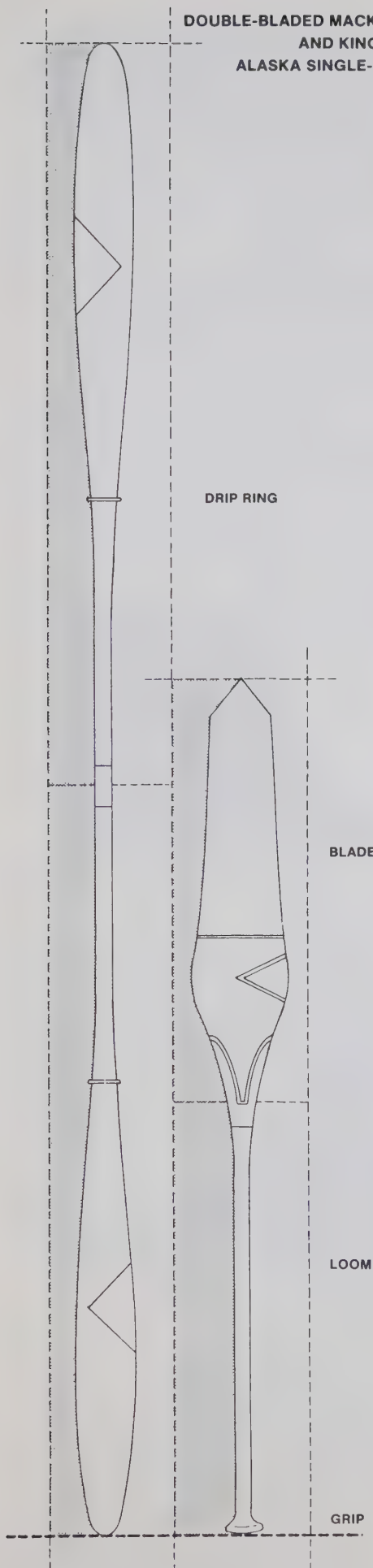
MULTI-CHINE SECTION SHOWING RIBS, STRINGERS, KEELSON AND GUNWALE

**NARROW BEAM.** See: **beam**.

**PADDLE.** An oar held in the hands and used for propelling the kayak. Paddles may be **single-bladed** or **double-bladed**. The latter type are sometimes equipped with carved hand grips and **drip rings**. Arctic **double-bladed** paddles usually have narrow blades that are in the same plane. The blade tips and sides are sometimes strengthened with pegged on pieces of bone, antler or ivory.



**DOUBLE-BLADED MACKENZIE ESKIMO PADDLE  
AND KING ISLAND,  
ALASKA SINGLE-BLADED PADDLE**



DRIP RING

BLADE

LOOM

GRIP

**PADDLER.** Term used interchangeably with **kayaker**.

**PEARL.** Surfers term for **broach**.

**PEG.** A type of treenail often carved from antler or ivory used to fasten together scarf joints and secure ribs and deck beams to gunwales. See also: **treenail**.

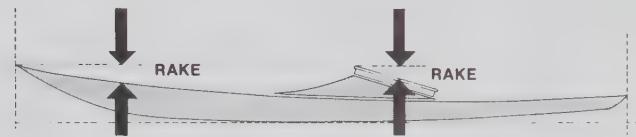
**PLAN VIEW.** A drawing made to scale to represent the top view or a horizontal cut of a structure.

**PORT.** The left side of a ship looking from stern toward bow.

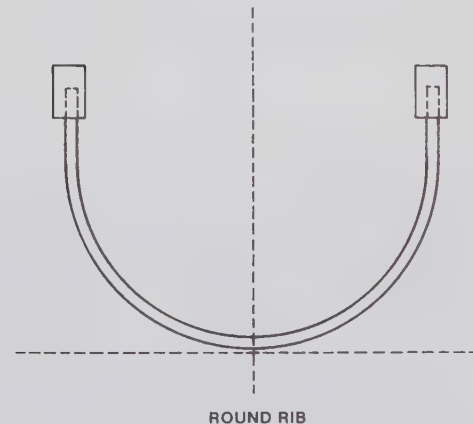
**PROFILE VIEW.** See: **elevation**.

**PROW.** A ship's ornamented stem. Cannot be used interchangeably with bow or stem.

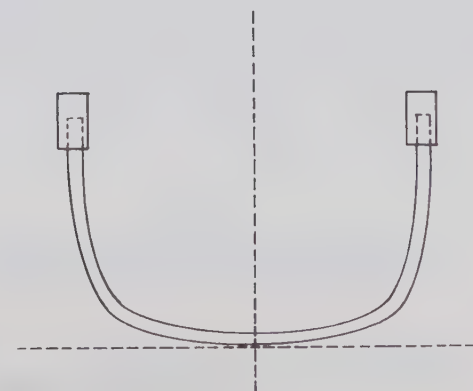
**RAKE.** Inclination or slope away from the perpendicular or the horizontal. Rake is thought of in a forward to aft sense; thus a cockpit coaming with after edge lower than forward edge is said to be raked. Rake is more often associated with a hard angle while **rise** connotes an upward curve, especially when describing a bow configuration. See also: **rise**.



**RIB.** One of the curved timbers or members in a craft's frame which spring upward and outward from the keel (keelson in a kayak) area. Used interchangeably with **frame**. A rib may be **round** or **bent** to a hard angle to form the **turn of the bilge**.



ROUND RIB



BENT RIB

**RIDGED DECK.** See: **deck**.



**RISE.** To move from a lower to a higher position; to have an upward slant or curve. See also: **rake**, **bow**, **deadrise**, **stern**.

**ROCKER.** A vertical or upward curve built into keel (keelson in a kayak) line. A craft with this attribute is said to be **rocker-bottomed**. See also: **hull**.

HULL PROFILE SHAPE



STRAIGHT BOTTOM



ROCKER BOTTOM

**ROD BATTEN.** See: **stringer**.

**ROUND BOTTOM.** See: **hull**.

**SAGGING.** To sink or bend downward by weight or pressure, especially in the middle. A kayak with too light a frame or too heavy a load may exhibit sagging.

**SCARF.** Either of the tapered or specially cut ends of the pieces forming a **scarf joint**.

**SCARF JOINT.** A joint by which the ends of two timbers or the like are fitted with long tapers or laps and glued, nailed, lashed or bolted into a continuous piece.



STRAIGHT SCARF



NOTCHED SCARF



HOOKED SCARF

**SECTION.** The shape of craft if cut lengthwise or crosswise. The term used to denote the latter is **cross section**.

**SHANK.** The part of an oar between the handle and the blade. Used interchangeably with **loom**. See also: **paddle**.

**SHARP-ENDED.** The bow and stern of a craft whose beam tapers down gradually to sharp ends.

**SHEER.** The upward, longitudinal curve of a craft's deck

DECK PROFILE SHAPE



NO SHEER FLAT DECK



SHEER FLAT DECK



REVERSE SHEER  
HOG BACKED  
RIDGED DECK

or gunwales. A downward longitudinal curve is termed **reverse sheer**. A craft with no sheer has a longitudinally straight deckline. Sheer is sometimes used to mean **sheer line**. A craft with a ridged deck may exhibit a hog-back appearance in profile while at the same time maintaining true sheer along the deckline.

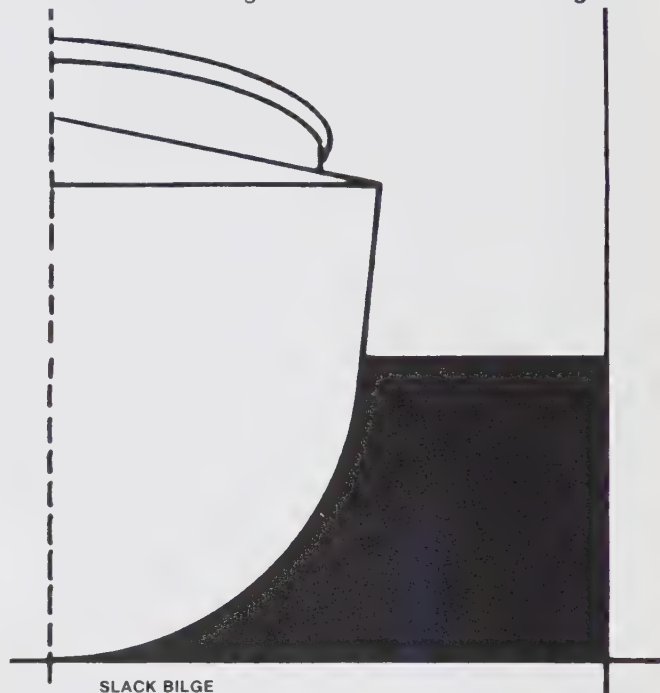
**SHEER LINE.** The line along the gunwale. Also called **deckline**.

**SIDE STRINGER.** See: **stringer**.

**SIDE VIEW.** See: **elevation**.

**SINGLE-BLADED PADDLE.** See: **paddle**.

**SLACK BILGE.** A gentle curved turn of the bilge.



SLACK BILGE

**SPRAY APRON.** See: **apron**.

**SPRAYDECK.** See: **apron**.

**STABILITY.** The resistance to capsizing or heeling over. A craft's **initial stability** is that it has at rest. **Final stability** is the resistance just before capsizing. Vee-bottom Greenland kayaks have good initial, but poor final stability whereas the deep, rounded-bottom Bering Sea types with flared sides have poor initial, but good final stability. The Caribou, Netsilik, Copper, Mackenzie and North Alaska types have poor initial and poor final stability.

**STANCHION.** An upright bar, beam, post or support. These are often found in Koryak kayaks between the deck stringer and the keelson and sometimes in South Alaskan kayaks as a support between the gunwales and cockpit coamings.

**STARBOARD.** The right side of a ship looking from stern toward bow.

**STEEP DEADRISE.** See: **deadrise**.

**STEM.** The forwardmost part of the bow.

**STERN.** The rear or after part of a boat.

**STRAKE.** One continuous longitudinal line or breadth of planking or plates on the side or bottom of a vessel. See also: **stringer**, **gunwale**, **wale**.

**STRINGER.** A long horizontal timber connecting upright posts or horizontal timbers. Used interchangeably with **batten**, **lath** and **strake** in reference to a kayak. Special stringers in a kayak are termed: 1. **gunwale**; 2. **keelson**; 3. **bilge stringer**,



found at the **turn of the bilge**; 4. **side stringer**, one or more of which are found between the gunwale and the bilge stringer; and 5. **deck stringer**, one or more of which are found on the deck at right angles to the deck beams. Side and bilge stringers on most kayaks are flat or oval in cross-section, but are round on many south Alaskan types. If round, they are sometimes called **rod battens**.

**THWARTSHIPS.** Used interchangeably with **athwartships**.

**TOPSIDES.** Usually the sides of the craft lying between theoretical waterline and sheer line. The topsides measurement is constant whether the boat is in the water or not. **Freeboard** measures the distance from the actual water level to the rail and varies as the water level does. See also: **freeboard**.

**TRAILING EDGE.** See: **after edge**.

**TREENAIL.** A cylindrical pin of hard wood for fastening together timbers in ships, etc. See also: **peg**.

**TRENAIL.** Spelling variation of **treenail**.

**TRIM.** The fore-and-aft balance of a boat. Also used in relation to athwartships balance; the difference between the draft at the bow of a vessel and that at the stern.

**TRUNNEL.** Spelling variation of **treenail**.

**TURN OF THE BILGE.** The contour where the bottom

of a boat meets the topsides. If the intersection of bottom and topsides is formed by a hard angle it is called a **hard chine**. If it is rounded it is called a rounded turn of the bilge. If it is gently curved it is a **slack bilge**.

**UMIAK.** An open boat consisting of a wooden frame covered with skins and provided with several thwarts, for transport of goods and passengers and hunting sea mammals.

**V-BOTTOM.** See: **hull**.

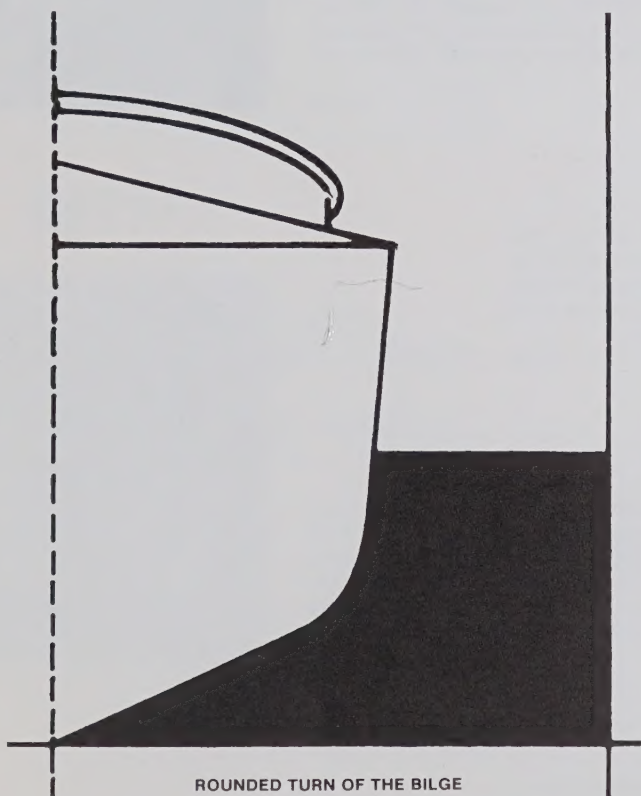
**WALE.** Any of certain strakes of thick outside planking on the sides of a wooden ship; sometimes the gunwale.

**WATERLINE.** The line where unloaded craft meets the water. See also: **length** and **load waterline**.

**WATERLINE LENGTH (LWL).** See: **length**.

**WHITE WATER SKIRT.** See: **apron**.

**WINDAGE.** That portion of a vessel's surface upon which the wind acts. ■



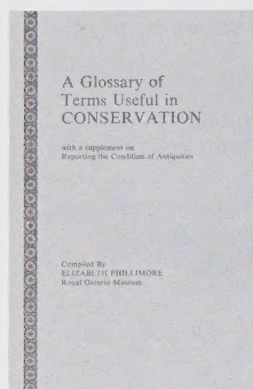
### EDITOR'S NOTE

Dr. Zimmerly obtained his doctorate in Anthropology at the University of Colorado and was appointed Arctic Ethnologist at the National Museum of Man in 1971. Besides his current long-term study of kayaks, he has also been involved in ethnographic film-making, collecting Eskimo life histories and music, and studying the Canadian Eskimo language and modern techniques of hunting and fishing.



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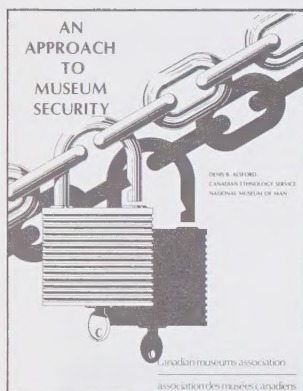
## publications



**A Glossary of Terms Useful in Conservation.** Compiled by Elizabeth Phillimore. 1976 45 pp. A comprehensive listing of conservation terms containing their origins, definitions, and applications. Includes a valuable listing of glossary terms under their appropriate field headings and a supplement on reporting the condition of antiquities.

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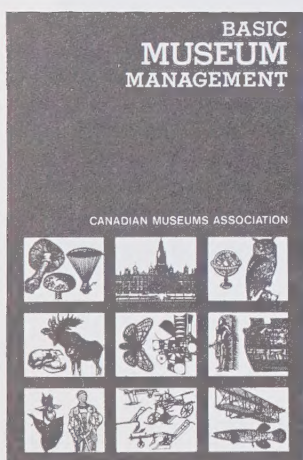
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**An Approach to Museum Security** by Denis B. Alsford. 1975 12 pp. An illustrated account of security considerations for museums: environmental conditions, external security, interior security, locks, security staff, curatorial security, fire and flood protection; bibliography. French edition available.

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**Basic Museum Management** edited by George MacBeath and S. James Gooding. 1968 80 pp. An introduction to museum practices and principles; includes sections on administrative procedures, legal status, the museum staff, museum functions and programs. Also available in French.

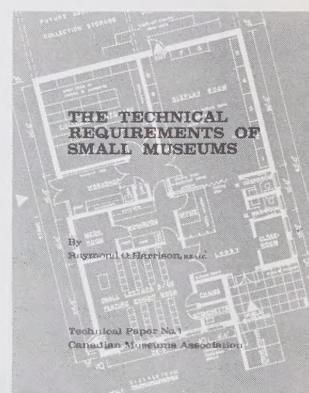
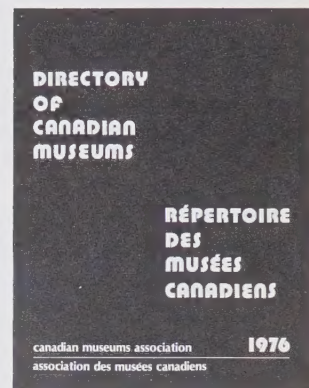
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**The Technical Requirements of Small Museums** Revised Edition by Raymond O. Harrison. With an appendix on Small Art Gallery Requirements by A.F. Key. 1969 27 pp. Illustrated with basic floor plans; includes sections on building materials and equipment, principles of building and interior space planning, site selection, building costing and capital budgets.

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